

## APPENDIX C

MODIFIED TIMBER MANAGEMENT PLAN  
FOR STATE OWNED LAND

Logging is a necessary tool in forest management order to insure a healthy, thriving forest; and when properly handled, logging operations can be compatible with the objectives of the Natural River Act of 1970, although certain guidelines are necessary. Several major timber types exist within the watershed, and each type varies in its basic requirements and silvicultural characteristics. Consequently, a blanket recommendation for timber harvest control should not be made. Instead recommendations based upon the individual timber types and their various silvicultural characteristics should be implemented.

Fivebroad timber types can found within the watershed. A variety of tree species can often be found within each type, and the species structure can vary considerably from stand to stand. However, the recommendations made for the broad types are generally applicable regardless of the degree of stocking of any one of the major type species.

Listed below are the major timber types found within the Two Hearted River Watershed along with a listing of the major and principle associated tree species:

1. Swamp Conifers
  - A. Major Tree Species
    - 1) Northern white cedar
    - 2) Black spruce
    - 3) Balsam fir
    - 4) Tamarack
  - B. Principle Associated Tree Species
    - 1) White spruce
    - 2) White birch
    - 3) Yellow birch
    - 4) Red maple
    - 5) Black ash
    - 6) Elm
    - 7) Balsam poplar
    - 8) Aspen
    - 9) White pine
    - 10) Hemlock
2. Hardwoods
  - A. Major Tree Species
    - 1) Sugar maple
    - 2) Red maple
    - 3) Beech
    - 4) Yellow birch
    - 5) Elm

6) Hemlock

- B. Principle Associated Tree Species
      - 1) White pine
      - 2) White spruce
      - 3) White birch
      - 4) Aspen
      - 5) Balsam fir
- 3. Aspen – White Birch
  - A. Major Tree Species
    - 1) Aspen
    - 2) White birch
    - 3) Balsam poplar
  - B. Principle Associated Tree Species
    - 1) Balsam fir
    - 2) White pine
    - 3) Red maple
    - 4) Black spruce
    - 5) White spruce
- 4. Jack Pine
  - A. Major Tree Species
    - 1) Jack Pine
  - B. Principle Associated Tree Species
    - 1) Red pine
    - 2) White pine
    - 3) White birch
    - 4) Aspen
    - 5) Black oak
- 5. Red and White Pine
  - A. Major Tree Species
    - 1) Red pine
    - 2) White pine
  - B. Principle Associated Tree Species
    - 1) Jack pine
    - 2) White birch
    - 3) Aspen
    - 4) Black spruce
    - 5) White spruce
    - 6) Red maple

Management of the timber stands within the Natural River Zone should be based upon the major timber types, which will be determined by the percent of stocking of major tree species. A stocking of 50 percent or more of the major tree species of any timber type will classify the stand

as being that timber type. Species found in association with the major types are incidental and are not representative of the stand. Forest management decision should not be influenced by the presence of the associated species, but instead, the stand should be managed according to the guidelines set forth for the major type.

The following timber management guidelines and recommendations are set forth for use within a corridor ¼ miles in any direction from the nearest point of the designated portions of the Two Hearted River or the designated portions of its tributaries:

General Specifications: Applying to state forest lands within Natural River Zone.

1. No timber cutting within 100 feet of the water's edge on each side of the stream.
2. All distances from the nearest bank of the stream shall be considered as horizontal distances.
3. Regardless of the horizontal distance, no cutting shall occur on any slope facing the river that exceeds 30 degrees of slope.
4. No haul roads shall be constructed or terminated nearer than 300' from the nearest bank of the stream.
5. No haul roads constructed closer than 660" from the nearest bank of the stream shall be constructed with more than 10 degrees of slope.
6. All timber cut within 300" of the nearest bank of the stream shall be felled at right angles to the stream, and in a direction directly away from the stream. Under no circumstances should tops be left nearer than 150' from the nearest bank of the stream, or within sight of the river.
7. All access planned for logging purposes on state land within the ¼ mile Natural River Zone must meet with the approval of the Area Forester, Lake Superior State Forest, prior to construction.
8. All access within the ¼ mile Natural River Zone as a result of timber harvest or other silvicultural work shall be closed upon completion of their needs for this purpose.

Management Recommendations by Major Timber Types:

1. Swamp Conifers
  - A. Between 100 feet and 400 feet from the nearest bank of the stream: upon initial entry into the stand, timber harvesting should consist of removing alternate and one chain strips of timber and leaving alternate one chain strips of timber uncut. Harvesting of the uncut strips should not proceed until the reproduction in the cut strips averages at least 5" in height, and stocking exceeds 600 seedlings per acre. The strips should be laid out roughly parallel to the main direction of the river through the description involved.
  - B. Between 400 feet and ¼ mile from the nearest bank of the stream: upon initial entry into the stand, harvesting should follow the guidelines prepared for paragraph B, except that alternate strips may be up to two chains wide and progress in any cardinal direction.

## 2. Hardwoods

- A. From 100' to 400' of the nearest bank of the stream: no cutting of any hardwood species smaller than 12" D.B.H. No cutting of white pine or white spruce in association. Cutting of hardwood species should be by a selection system, leaving a minimum of 95 square feet basal area per acre of hardwood, white spruce, white pine and hemlock.
- B. From 400' to ¼ mile of the nearest bank of the stream: stands managed for sawlog production should be harvested by a selection system, leaving a minimum stocking of 70 square feet of basal area per acre standing after harvest of all species. Stands managed for pulpwood production should be harvested either by a block or alternate strip clearcut system. Blocks should not exceed five chains by five chains square and strips should not exceed two chains in width. The initial cut should not exceed 1/3 of the management unit. The second cut should not be entered sooner than 10 years after the first. This cutting again should not exceed 1/3 of the management area. Additional cuts should be spaced at a minimum of 10-year intervals, but at no time should any cut exceed 1/3 of the management area.

## 3. Aspen – White Birch

- A. From 100' to 400' of nearest bank of the stream: no cutting of white birch, white pine or white spruce. All other species may be clearcut.
- B. From 400' to ¼ mile from the nearest bank of the stream: stands should be clearcut thoroughly enough to insure rapid and complete regeneration of the stand by aspen shoots.

## 4. Jack Pine

- A. Within 100' of nearest bank of the stream: no cutting, except as conditions warrant in situations of severe mortality resulting from excessive insect infestations. In these situations, only jack pine is to be cut. All trees are to be felled away from the stream.
- B. From 100' to 400' of the nearest bank of the stream: clearcut jack pine, but no cutting of any tree species in association.
- C. From 400' to ¼ mile from the nearest bank of the stream: clearcut jack pine. Associated species may also be removed, but any red or white pine scattered throughout the stand which will hold for a second rotation (about 60 years) should be left. Immediately following the harvest an effort must be made to regenerate the stand and continued until adequate stocking (minimum of 600 trees/acre) is established.

## 5. Red and White Pine

- A. From 100' to 400' of the nearest bank of the stream: intermediate cuts should be by selection system, leaving a minimum of 100 square feet of basal area per acre of red and white pine trees. Final cut should not occur earlier in the age of the stand than 170 years and should leave a minimum of 10 seed trees per acre. Seed trees should

not be removed until adequate (minimum of 600 trees per acre) regeneration occurs and averages at least 10 feet in height.

- B. From 400' to ¼ mile from the nearest bank: intermediate cuts should be on a selection system, leaving a minimum of 100 square feet of basal area per acre of red and white pine trees. Species in association may be harvested. The final cut should not occur earlier in the age of the stand than 150 years. If adequate regeneration has not occurred by the time of the final cut, an effort must be made to artificially regenerate the stand and continued until adequate stocking results (600 trees per acre).